

**What is claimed is:**

1. An injection unit having a rotatable device for preventing reverse flow, the injection unit comprising:

5           an injection screw rotatably mounted inside a cylindrical barrel to inject resin into the cylindrical barrel therethrough;

          a spacer mounted at an end portion of the injection screw, the spacer rotating integrally with the injection screw and having at least one or more first flow channels arranged on the circumferential surface thereof at predetermined intervals;

10           a screw head perforating the spacer and rotatably supported on the injection screw, the screw head having at least one or more second flow channels arranged on the circumferential surface thereof at predetermined intervals and corresponding to the first flow channels;

          spring means mounted at an end to the injection screw and mounted at the other end to the screw head, the spring means elastically accumulating a repulsive force when the injection  
15 screw rotates and being elastically restored to an original position when the rotation of the injection screw stops; and

          channel phase control means for rotatably connecting the screw head relative to the spacer, so that the phase of the first flow channels corresponds to the phase of the second flow channels by being rotated in the first direction when the injection screw rotates, and the phase of  
20 the first flow channels is discordant to the phase of the second flow channels by being rotating in the second direction, which is the opposite direction of the first direction, when the rotation of the injection screw stops.

2. The injection unit according to claim 1, wherein the injection screw has a helical  
25 thread formed on the circumferential surface thereof.

3. The injection unit according to claim 1, wherein the channel phase control means restricts a difference between the phase of the first flow channels and the phase of the second flow channels to a predetermined range.

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4. The injection unit according to claim 3, wherein the channel phase control means includes: a screw head fixing pin mounted in the spacer; and

a pin guide groove for inserting the fixing pin therein, the pin guide groove being formed in the circumferential direction of the screw head to restrict the rotational angle of the fixing pin in the circumferential direction of the screw head.

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5. The injection unit according to claim 1, wherein the first flow channels have the same number as the second flow channels and;

the number of the first flow channels is at least one or more.

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6. The injection unit according to claim 5, wherein the channel phase control means restricts a difference between the phase of the first flow channels and the phase of the second flow channels to a predetermined range.

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7. The injection unit according to claim 6, wherein the channel phase control means includes: a screw head fixing pin mounted in the spacer; and

a pin guide groove for inserting the fixing pin therein, the pin guide groove being formed in the circumferential direction of the screw head to restrict the rotational angle of the fixing pin in the circumferential direction of the screw head.

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8. The injection unit according to claim 7, wherein the pin guide groove is formed at half the angle corresponding to the interval between the flow channels.

5 9. The injection unit according to claim 1, further comprising a mixer shaft mounted on the rotary shaft of the screw head for mixing the resin.

10. The injection unit according to claim 9, wherein the mixer shaft has a number of mixing pins arranged on the circumferential surface thereof.

10 11. The injection unit according to claim 10, wherein the mixing pins are arranged in a lattice form.

12. The injection unit according to claim 11, wherein the mixing pins arranged in the lattice form are divided into the first row arranged in an axial direction and the second row  
15 crossing the first row.